

labours. I will conclude by announcing that the future participation of Austria in such an enterprise has been secured by the generosity of a man who has already made several sacrifices in the interest of Arctic voyages."

The Mæcenæ of the new expedition alluded to but not named in this announcement is understood to be Count Hans Wilczek.

Weyprecht's manly speech was followed by great applause, and has already produced the effect of inducing the Commission appointed by the German Government to examine the question of expediency of a new expedition to the North Pole, *not* to recommend the despatch of a new expedition, but the establishment of stations of observation in northern latitudes.

The second general meeting selected Hamburg for its place of assembly in 1876, and appointed the chief magistrate of the town, Burgomaster Kirchenpauer, and Dr. Dantzel, to manage affairs. Prof. Behn brought before the meeting the plan of a society for the assistance of scientific men in reduced circumstances.

Dr. Günther then gave a very interesting lecture, to which, unfortunately, no abridgment could do justice, on the aims and results of the history of mathematics; followed by Prof. Benedict on the history of crime with regard to ethnology and anthropology. He touched upon delicate ground, asserting that every action is based less on liberty than on compulsion; that our acts are governed by natural laws and not by theological opinions, and that punishment may act as a corrective of perverted human nature, but is chiefly the outflow of the desire of society to avenge wrongs inflicted upon it. The best prevention of crime depends upon the increase of our knowledge of those circumstances that necessarily engender it. In England a speech like this would no doubt have raised a storm of theological indignation. In Germany the clergy is distinguished by its absence from scientific meetings. The separation of natural science and orthodoxy is complete, and no opposition was therefore offered to these remarks.

In the third and last general meeting two popular medical lectures were given, one by Dr. Ravoth, on nursing the sick; the other by Dr. Lender, on ozone (the latter gentleman having made some doubtful efforts of introducing infinitesimally small doses of ozone into medicine). Then Prof. von Pebal rose, and declaring the order of the day exhausted, thanked the members for their attendance at Gratz, and proposed a vote of thanks to the sovereign in whose realm they had assembled. This proposal having been cheerfully responded to, Dr. Stilling proposed and carried a cordial vote of thanks to the town of Gratz, and Dr. Rollet, who presided at the meeting, declared the assembly closed.

Of minor incidents may be mentioned the invitation of a society in Offenburg (Black Forest) to contribute for a monument to be erected to Oken in this his native town; and the distribution of several works written for the occasion, amongst others a guide to Gratz, and a commemorative volume published by the Medical Society of that town.

Reverting at last to a short review of the proper business of the Association, its sectional meetings, the reader will remark the absence at the German assembly of one of the most popular sections of the British Association, viz., that of engineering, while several other sections appear in the German programme that are omitted in the British society, notably those devoted to medicine. This review will form the subject of a second article. A. OPPENHEIM

#### THE GERMAN COMMISSION ON ARCTIC EXPLORATION

THE German Commission on Arctic Exploration, appointed by the Reichskanzler, and to which we have before referred, consists of Professors Dove and

Neumayer, Doctors v. Richthofen and Siemens from Berlin, Prof. Karsten from Kiel, Prof. Grisebach from Gottingen, Prof. Zittel from Munich, Prof. Bruhns from Leipzig, Prof. Quenstedt from Tübingen, Director Rümker from Hamburg, Professors Schimper and Winnecke from Strassburg. The Commissioners have held meetings at Berlin from October 4 to 13; and the result of their deliberations—a long memoir on the value of the different branches of science—has been delivered to the Bundesrath for further consideration. The *résumé* of that report is contained in the following unanimously adopted conclusions:—

"1. The exploration of the Arctic regions is of great importance for all branches of science. The Commission recommends for such exploration the establishment of fixed observing stations. From the principal station, and supported by it, are to be made exploring expeditions by sea and by land.

"2. The Commission is of opinion that the region which should be explored by organised German Arctic explorers, is the great inlet to the higher Arctic regions situated between the eastern shore of Greenland and the western shore of Spitzbergen.

"3. Considering the results of the second German Arctic expedition, a principal station should be established on the eastern shore of Greenland, and, at least, *two* secondary stations, fitted out for *permanent* investigation of different scientific questions, at Jan Mayen and on the western shore of Spitzbergen. For certain scientific researches the principal station should establish temporary stations.

"4. It appears very desirable, and, so far as scientific preparations are concerned, possible, to commence these Arctic explorations in the year 1877.

"5. The Commission is convinced that an exploration of the Arctic regions, based on such principles, will furnish valuable results, even if limited to the region between Greenland and Spitzbergen; but it is also of opinion that an exhaustive solution of the problems to be solved can only be expected when the exploration is extended over the whole Arctic zone, and when other countries take their share in the undertaking.

"6. The Commission recommends, therefore, that the principles adopted for the German undertaking should be communicated to the Governments of the States which take interest in Arctic inquiry, in order to establish, if possible, a complete circle of observing stations in the Arctic zones."

#### NOTES

WE take the following from the *Times*:—

The award of the medals in the gift of the Royal Society for the present year, by the Council, is as follows:—The Copley Medal to Prof. A. W. Hofmann, F.R.S., for his numerous contributions to the science of chemistry, and especially for his researches on the derivatives of ammonia; a Royal medal to Mr. William Crookes, F.R.S., for his various chemical and physical researches, more especially for his discovery of thallium, his investigation of its compounds, and determination of its atomic weight, and for his discovery of the repulsion referable to radiation; a Royal medal to Dr. Thomas Oldham, F.R.S., for his long and important services in the science of geology, first as Professor of Geology, Trinity College, Dublin, and Director of the Geological Survey of Ireland, and chiefly for the great work which he has long conducted as Superintendent of the Geological Survey of India, in which so much progress has been made that in a few years it will be possible to produce a geological map of India comparable to the geological map of England executed by the late Mr. Greenough—also for the series of volumes of Geological Reports and Memoirs, including the "Palæontologia

Indica," published under his direction. It is hoped that Dr. Hofmann may be spared from Berlin for a few days so as to receive the medal in person. The medals will be presented at the anniversary meeting of the Society on the 30th inst.

The following are the names to be proposed for election as Council and officers of the Royal Society for the ensuing year at the anniversary meeting of the Society, to be held on the 30th inst., St. Andrew's Day:—President, Joseph Dalton Hooker, C.B. Treasurer, William Spottiswoode, M.A., LL.D. Secretaries, Prof. George Gabriel Stokes, M.A., D.C.L., LL.D., and Prof. Thomas Henry Huxley, LL.D. Foreign Secretary, Prof. Alexander William Williamson, Ph.D. Other members of the Council:—Prof. J. C. Adams, LL.D., Major-General John T. Boileau, Edward Viscount Cardwell, F.G.S., Warren De la Rue, D.C.L., Capt. Frederick J. O. Evans, R.N., C.B., Edward Frankland, D.C.L., Albert C. L. G. Günther, M.D., Prof. T. Wharton Jones, F.R.C.S., Joseph Norman Lockyer, F.R.A.S., the Rev. Robert Main, M.A., Prof. Daniel Oliver, F.L.S., Prof. Edmund A. Parkes, M.D., Right Hon. Lyon Playfair, C.B., LL.D., William Pole, C.E., the Rev. Bartholomew Price, M.A., Warrington W. Smyth, M.A.

At last Friday's lecture by Dr. Carpenter, in connection with the St. Thomas Charterhouse School Teachers' Science Association, Dr. Lyon Playfair presided. In proposing a vote of thanks to Dr. Carpenter, Dr. Playfair referred to the subject of compulsory education, which is gradually becoming universal in this country, but which, he said, would be pure tyranny unless the education in our schools was increased and its quality raised. Quantity is all very good, but unless there is quality along with it, there is not much gained. "If it was to be said that children of thirteen or fourteen years of age were merely to receive the same education as children of eight years of age, compulsory education would be but tyranny. Therefore compulsory education involved higher education." Dr. Playfair expressed his gratification that the teachers composing the Association had banded themselves together in order to qualify themselves by attending such lectures as those of the Gilchrist fund and by other means, to undertake this higher education, which, we believe with Dr. Playfair, will be forced upon us even in elementary schools by the spread of compulsory education.

THE conferring of the Freedom of the City of London on Sir George B. Airy, the Astronomer Royal, and late President of the Royal Society, which took place on Thursday last, is, we believe, the first instance in which that honour has been bestowed for scientific services unconnected with military or engineering science. In the civic speeches which accompanied the ceremony, great stress was laid on Sir G. B. Airy's services in connection with the Metric Standard.

IN the Quarterly Return of Marriages, Births, and Deaths, just issued by the Registrar-General, we are glad to see that attention is pointedly drawn in the remarks to the annual epidemic of infantile diarrhoea, and the opinion expressed that it rests with the health officers of the diarrhoea-stricken towns to discover the nature of the sanitary shortcomings which lead to this waste of infant life. Perhaps equal stress might have been laid on a correct knowledge of the modes of nursing infants prevailing in the separate towns as on their merely sanitary conditions, as likely to lead to the true causes of the observed variations in the diarrhoea death-rate.

AT the Meteorological Congress to be held under M. Le Verrier's presidency at Poitiers on the 19th, 20th, and 21st inst., as already stated in NATURE, steps will be taken to inaugurate, for the west of France overlooking the Bay of Biscay, a system of daily weather telegrams by the Observatory of Paris. Since this system of warnings is more specially designed to further the interests of agriculture, subscriptions are solicited from pro-

prietors and others more specially interested in the success of the proposed scheme, particularly in view of the considerable expense which will be incurred in founding a sufficient number of stations with the necessary equipment of instruments. Weather warnings for agriculturists, if they are to be of practical utility, must do more than forecast high winds, they must also, and more particularly, aim at giving warning of the approach of frost, rain, snow, and thunder-storms; and this requires for its successful accomplishment more numerous stations and more frequent observations than are necessary in issuing warnings for the benefit of the shipping interest.

WE have received the Transactions of the Michigan State Medical Society for 1875, containing among other matters a discussion by Professor Kedzie, the president, of the observations on ozone made by him during 1872-75; and a form for meteorological observations made thrice a day, adopted by the State Board of Health, Michigan, which appears to be well adapted for medico-meteorological purposes, except that the directions given for the position of the thermometer are vague as well as faulty to secure comparability among the observations.

AT the last meeting of the General Council of the Yorkshire College of Science, under the presidency of Dr. Heaton, it was unanimously resolved to found a scholarship of the annual value of 25*l.*, to be called the Cavendish Scholarship, in recognition of the obligations conferred upon the college by the Duke of Devonshire and Lord F. C. Cavendish, M.P. From a statistical return presented by Mr. Henry H. Sales, secretary, it appears that 200 students are in attendance at the college, of whom more than forty are availing themselves of the day classes.

THE Report of the Scotch Herring Fishery Board states that already certain facts have been discovered in the course of the experiments which have been instituted for the purpose of discovering how far the temperature of the sea and other meteorological conditions might be concerned in determining the migration of the herring. Arrangements were made during the season of 1874 for regular observations, and twenty of the fisheries were supplied, through the liberality of the Marquis of Tweeddale, with deep-sea thermometers for ascertaining the temperature of the sea at the times and places when fishing was going on. The records of these observations, taken in conjunction with the returns of the daily catch, and with particulars collected from other sources, were referred to Mr. Buchan, Secretary to the Meteorological Society, who analysed them. Although the returns are not sufficiently full to afford any accurate rule, owing to the lateness of the period before the sea-thermometers were ready to be sent to the fishermen, they prove that "during the periods when good or heavy catches were taken the barometer was, in the great majority of cases, high and steady, the winds light or moderate, and electrical phenomena wanting; and on the other hand, when catches were low, the observations often indicated a low barometer, strong winds, unsettled weather, and thunder and lightning." From the complete returns of the daily catch of the fish, and of the meteorological conditions, inclusive of the temperature of the sea, now obtained, it is anticipated that materials will be collected in three or four years from which most valuable conclusions will be arrived at.

A NEW edition of Dr. Lardner's "Handbook of Astronomy," revised and completed to 1875 by Mr. Edwin Dunkin, F.R.A.S., is nearly ready for publication by Messrs. Lockwood and Co. It will contain a large number of plates and woodcuts.

THE *Daily Telegraph* announces that the letters from Mr. Stanley, committed to the charge of M. Linants de Bellefonds, have safely arrived, notwithstanding the assassination of Colonel Gordon's representative. They contain a full description of the south-eastern, eastern, and northern shores of Lake Nyanza.



The letters are said to contain valuable geographical data in illustration of the map already forwarded, including soundings of the Victoria Nyanza and an exploration of the White Nile above Ripon Falls.

IN reference to the Reuter's telegram (vol. xii., p. 562) relative to the mission to Italy of Major Festing and Mr. Lockyer, we should state that the instruments which it was sought to collect for the forthcoming Government Exhibition of Scientific Instruments at South Kensington Museum are not instruments used in recent astronomical observations, but rather such as will be historically interesting as illustrating those sciences in the early development of which Italian philosophers such as Galileo, Toricelli, Volta, and Galvani took such a large share.

ON Saturday evening, Captain Adams, of the whaler *Arctic*, arrived in Dundee from the Davies Straits fishing. From the condition of the wind and sea at Carey Island, Captain Adams believes that there must have been a vast extent of open water towards the north, and he is convinced that the Government ships must have reached a higher latitude than they possibly could have attained for many years past. Captain Adams has an intimate knowledge of the Polar regions, and has already made several valuable contributions to Arctic discoveries.

A SERIES of Popular Scientific Lectures was commenced at the Town Hall, West Bromwich, on Tuesday week, when Prof. Williamson, F.R.S., lectured on "Coal and Coal Plants." The following remain to be given:—On Nov. 16, "The Age of Ice in Britain," by Rev. H. W. Crosskey, F.G.S. On Nov. 30, "Coal Gas," by F. Jones, F.R.S.E., F.C.S. On Dec. 14, "Nerve Cells and Nerve Fibres," by Prof. A. Gamgee, M.D., F.R.S. On Jan. 10, "The Mariner's Compass," by J. Hopkinson, D.Sc., M.A.

WE have received the Report of the "Botanical Locality Record Club" for 1874. It forms a valuable addition to our topographical knowledge of British plants; and in the list of "New County Records," care seems to have been taken not to give those of the rarer plants so precisely that the publication will be likely to result in their extinction. A suggestion has been made to extend the area of the records to Cellular Cryptogams (Vascular Cryptogams being already included). This might probably be done with advantage as far as Mosses, Lichens, and Hepaticæ, and possibly also Fungi, are concerned; but with regard to Algæ, it is more doubtful whether much would be gained by a record of their geographical distribution.

MM. REESS and WILL, of Erlangen, record in the *Botanische Zeitung* No. 44 for the current year, a series of observations on the carnivorous habits of *Dionæa* and *Drosera*. Made quite independently of Mr. Darwin's researches, and partly before their publication, they abundantly confirm his conclusions as to the power possessed by the sundew of absorbing and digesting nitrogenous substances. Similar experiments on other plants with glandular hairs produced, like Mr. Darwin's, negative results.

THE *Argonaut* is to be doubled in size at the commencement of a new volume in January. A new feature will be a monthly report, suited for general readers, on the progress of science, specially prepared for the magazine "by professional gentlemen of acknowledged standing in their respective spheres of study."

IT is gratifying to see that the value of experimental observation is coming to be more and more recognised in Medicine. We would draw attention, in reference to this, to a summary of an excellent address on the subject, by Dr. McKendrick, of Edinburgh, which appears in last Saturday's *British Medical Journal*.

PROF. W. R. M'NAB reprints from the *Quarterly Journal of Microscopical Science* his translation of Brefeld's most important researches on the life-history of one of the common blue moulds, *Penicillium glaucum*. A very close research succeeded in detecting the hitherto unknown sexual mode of reproduction of this fungus. Brefeld terms the second generation a sclerotium or sporocarp, from which are developed—as the result of the union of the true sexual organs, the carpogonium and antheridium—asci and ascospores, the formation of which shows that *Penicillium* must be placed in the group of Ascomycetes; and he considers that, from the striking resemblance of the minute structure of the sclerotia to those of the truffle, a position must be assigned it close to the Tubercaceæ.

THE second part of Bentley and Trimen's "Medicinal Plants" fully maintains the character of the first. It contains seven plates: *Theobroma Cacao* (the cocoa-plant), *Rhamnus catharticus*, *Prunus Amygdalus* (the almond), *Pyrus Cydonia* (the quince), *Lobelia inflata*, *Gaultheria procumbens*, and *Cinnamomum zeylanicum* (the cinnamon). The letter-press is amply descriptive of the various species and their official preparations. The work will be completed in about forty parts.

MM. Wiegandt, Hempel, and Parey, of Berlin, are publishing a large number of wall-maps or diagrams for instruction in natural history, with especial reference to agriculture. Five series have been issued up to the present time; the first relating to the breeding of stock; the second to the production of wool; the third to the minute structure of plants; the fourth to the cultivation of root and other crops; and the fifth to physical geography.

MR. J. J. HARRIS TEALL, B.A., First Class in the Natural Sciences Tripos 1872 and Sedgwick Prizeman 1873, has been elected a Fellow of St. John's College, Cambridge. Mr. Teall is at present one of the lecturers engaged on behalf of the University in the larger towns.

THE unfortunate explosion of the *Magenta* at Toulouse has involved a loss of some consequence to science. Eighteen Phœnician inscriptions, recently discovered and on their way to the Louvre Museum, were on board the ill-fated steamer. Great efforts will be made to raise the hull, and the inscriptions may possibly be recovered by divers.

THE Crystal Palace Company's School of Practical Engineering is to be further developed this season by the addition of a Colonial Section. This section is designed particularly for gentlemen who intend to proceed to the colonies or abroad, as explorers or settlers. The object proposed is to afford them so much practical knowledge of scientific and mechanical work and expedients as shall enable them best to utilise the means with which they may have to deal, especially when entirely dependent on their own resources. The Colonial Section will be opened on January 5, 1876.

A RETRIEVER DOG, whose owner was working in the garden of the Bath Institution, lately killed a favourite cat, a frequenter of the same grounds. Having committed this unprovoked murder, the dog deliberately took the cat in his mouth, carried it some distance, dug a deep hole behind some bushes, and after depositing the cat therein, carefully replaced the earth, and had he not been observed there would have been no evidence of the crime. Shortly after, the dog lost his life by poison, probably a penalty for the offence.

IN the neighbourhood of Bath a gentleman possesses a pair of carriage horses, one of which evinces more than ordinary intelligence when his own ends have to be served. If the horse hears, even in the distance, the very first movement of a mowing-machine, he connects the sound with fresh grass, and at once taps with his hoof at the boarding of the stall to summon the

coachman for a supply. At first this is done gently, but if time passes he imperatively demands attention, or it is doubtful if the stable would contain him. The coachman lives adjoining the stable, and, much to his discomfort, the horse sometimes has imaginary wants during the night, and repeats the same process; and at whatever hour this occurs, the coachman is under the necessity of getting up to attend to him.

On the 23rd inst. there will be an election at Balliol College, Oxford, to a scholarship on the foundation of Miss Hannah Brakenbury, "for the encouragement of the study of Natural Science," worth 80*l.* a year, tenable during residence of four years; open to all such candidates as shall not exceed eight terms from matriculation. Candidates are requested to communicate their intention to the Master of Balliol by letter, on or before Tuesday, the 16th inst., enclosing testimonials.

THE formal opening of the Zoological Garden of Cincinnati took place on the 18th of September. It contains sixty-six acres, and is very well arranged for its purposes.

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented by Mrs. Tipping; an Egyptian Goose (*Chenalopex aegyptiaca*) from Africa, presented by Dr. E. Swain; a Ring-necked Parakeet (*Palaeornis torquata*) from India, presented by Miss Thirlwall; a White-fronted Guan (*Penelope jacucaca*), a White Eye-browed Guan (*Penelope superciliaris*) from S.E. Brazil, a Vulpine Phalanger (*Phalangista vulpina*) from Australia, a Blue and Yellow Macaw (*Ara ararauna*) from S. America, two Jambu Fruit Pigeons (*Ptilonopus jambu*) from the Indian Archipelago, deposited; two Upland Geese (*Chlapaga magellanica*) from the Falkland Islands, received in exchange.

#### OBSERVATIONS ON BEES, WASPS, AND ANTS\*

THIS is a continuation of my previous papers on the same subject. In them I recorded various experiments tending to show that in many cases Ants and Bees which have found a store of food or of larvæ certainly do not communicate the information to their friends. This unexpected observation was received with so much surprise, and indeed was so unexpected to myself, that I determined to repeat the experiments: which I have now done, with, however, the same result. To take one as an illustration: I placed an *F. Flava* (the small red ant) to a heap of larvæ, which, as is well known, are fleshy legless grubs incapable of motion. I placed them about two feet from the entrance to her nest. I then watched her from eleven in the morning till after seven in the evening, during which time she made eighty-six journeys from the nest to the heap of larvæ, carrying one off each time; but although she had so much work to do, and though the precious larvæ were lying for so long exposed to so many dangers and to the weather, she brought no other ant to assist her in carrying them off. One of the ants I observed in this way carried off one by one no less than 187 larvæ in a day. In other instances, on the contrary, the opposite result occurred. I was for some time uncertain, in the latter cases, whether the ants purposely brought friends to their assistance, or whether, as the ants are sociable insects, it merely happened that the one accompanied the other, as it were, by accident. To test this question, I took two ants, and placed them under similar circumstances, the one to a heap of larvæ, the other to a group of two or three, always, however, putting one in place of any that was carried off; and it was quite clear that the ants which were placed to the large group of larvæ brought far more friends to their assistance than those which had apparently only two or three larvæ to move. Of thirty ants which were observed, those placed to a large number of larvæ brought 250 friends, while those placed to two or three larvæ under similar circumstances only brought eighty.

One account, much relied on as showing the intelligence of ants, has been the following observation made by M. Lund in Brazil.

\* A paper read by Sir John Lubbock, Bart., M.P., D.C.L., F.R.S., at the Linnean Society, Nov. 4. Communicated by the author.

Passing one day under a tree which stood almost by itself, he was surprised to hear the leaves falling like rain. On examining the cause of this, he found that a number of ants had climbed the tree, and were cutting off the leaves, which were then carried away by companions waiting for them below. Of course it might be said that the leaves which dropped fell by accident; in which case they would naturally be carried off by the ants below. It occurred to me, however, that this was an observation which might easily be repeated. I placed therefore a number of larvæ on a slip of glass, which I suspended by a tape, so that it hung one-third of an inch from the surface of one of my artificial nests; isolating it, however, in such a manner that for an ant to walk to the nest she would be obliged to go thirteen feet round. I then placed some black ants (*F. nigra*) on the glass with the larvæ. Each of them took a larva in the usual way, and then endeavoured to go by the quickest road home. They leaned over the glass and made every effort to reach down, but of course in vain, though the distance was so small that they could all but touch the nest with their antennæ, and even, in one or two cases, succeeded in getting down by stepping on to the back of an ant below. Those, however, which did not meet with any such assistance, gradually, though at first requiring some help from me, found their way round to the nest, and after a short time there was quite a string of ants passing to and fro from the nest to the larvæ, although it would have been so easy for them to throw the larvæ over the edge of the glass, or to go straight home, if they would have faced a drop of, say, one-tenth of an inch.

Moreover, I placed some fine mould within half an inch of the glass, so that it would have been easy for the ants, by literally one minute's labour, to have constructed for themselves a stepping stone up to the glass; yet they did not adopt any of these expedients, but for hours together, and by hundreds, continued to make the long journey round. I confess this experiment, which I repeated on several occasions, surprised me very much.

As my previous experiments, which showed that bees did not by any means in all cases bring their friends to share stores of food which they had discovered, have been much questioned by bee-keepers, I have repeated them again.

No doubt, if honey is put in an exposed place, so that it is found by one bee, it is most natural that others should also find their way to it; but this does not, according to my experience, happen if the honey is concealed. For instance, I put a bee to some honey in a flowerpot placed on its side, and so arranged that the bee had only a small orifice through which to enter. Under these circumstances, from a quarter to seven in the morning till a quarter past seven in the evening, she made fifty-nine journeys, and during the whole of this time only one other bee found her way to the honey.

I found that bees soon accustomed themselves to look for honey on papers of particular colours. For instance, on Sept. 13 I placed a bee to some honey on a slip of glass on green paper, and after she had made twelve journeys to and from the hive I put red paper where the green had been, and placed another drop of honey on a green paper, at a distance of about a foot. The bee returned, however, to the honey on the green paper. I then gently moved the green paper, with the bee on it, back to the old place. When the bee had gone, I replaced the green paper by a yellow one, and put the green again a foot off. After the usual interval she returned again to the green. I repeated the same proceeding, but with orange paper instead of green. She returned again to the green. I now did the same with white paper: she returned again to the green. Again I tried her with blue: she again came to the green. I then reversed the position of the blue and green papers, but still she returned to the green. I repeated this experiment with other bees, and with the same result, though it seemed to me that in some cases they did not distinguish so clearly between green and blue as between green and other colours. In other respects they seemed to adhere equally closely to any colour to which they were made accustomed.

As regards wasps, my experiments fully confirm those previously made, and justify everything I have said with reference to their great industry. Indeed, they begin to work earlier in the morning and cease later in the evening than bees, continuing all day with the utmost assiduity. Thus, a wasp which I watched on the 10th of September, worked from seven in the morning until seven in the evening without a moment's intermission, during which time she made no less than ninety-four visits to the honey. As is the case with bees, if a wasp is put to exposed honey, others soon come. To determine this, if pos-